Abstract

The present invention provides a safety needle/catheter system and method of use for dialysis procedures. The invention includes a safety feature that prevents inadvertent needle sticks by administrators. The invention further includes a catheter portion composed of shape memory materials. The catheter portion has a deformed shape and size that facilitates insertion of the catheter portion and closure of the catheter incision and a recovered shape and size that can reduce the severity of infection and/or clotting, as well as provide improved maintenance and control over proper fluid volume flow during dialysis.